Space Weather Forecast

Issued on Monday, 17 October 2022 at 01:09 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the past 24 hours, with a few small common-class X-ray flares evident. The largest of these was observed at 16/1606UTC from a sunspot region in the northwest of the Sun, with minor proliferation of its constituent spots observed. This was one of four sunspot regions, with the other main group lying in the southwestern quadrant, which saw marked areal growth and some latitudinal spreading. Making up the current front side were two other magnetic bipolar regions, which were largely unchanged in the 24 hours.

There remain numerous 'filaments' (arcs of plasma) on the facing side of the Sun at present, and while some of these were mobile in the period, none obviously lifted off, and no Coronal Mass Ejections (CMEs) were in evidence on available satellite imagery at the time of writing.

Solar Wind / Geomagnetic Activity: The solar wind showed ongoing connection to the fast wind of a coronal hole.

The solar wind speed showed a roughly level tendency within Elevated levels. The number of particles in the solar wind and their associated magnetic field were both level, the former slightly elevated above long-term background. The net result of these solar wind measures was for geomagnetic activity below Minor Storm G1, but only narrowly so at times, perhaps because of the elevated speed involved.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be low or very low, barring any significant sunspot development.

Solar Wind / Geomagnetic Activity: There are currently no Earth-directed CMEs, and the only fast wind expected in the period is already in course.

Geomagnetic activity will most likely remain below Minor Storm G1 throughout, with an early peak slight chance falling to become reliably quiet from midweek UTC as Earth exits a fast wind for a slow regime.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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